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Sir: Transmitted herewith for filing is the patent application of:

Inventor: H. KAWAMICHI et al (See Attached List)

For:
ADAPTIVE COMMUNICATION METHOD

Enclosed are:



12 Sheets of Drawings



This application is being filed without an executed Declaration.



Priority is claimed from Japanese Application No. 11-322117

filed November 12, 1999 ☐ A certified copy is attached herewith.



Copies of the disclosure documents listed on the attached PTO 1449 form and

☒ discussed in the specification or ☐ attached Information Disclosure Statement.



A verified statement to establish small entity status under 37 CFR 1.9 and 1.27.



Specification: Abstract ☒ Description 32 pages; and 14 claim(s).



Preliminary Amendment.



Executed Declaration.

The filing fee is calculated as shown below:

Small Entity

Large Entity

For:	No. Filed	No. Extra
Basic Fee		
Total Claims	14 -20 = *	0
Indep Claims	4 -3 = *	1
<input type="checkbox"/> Multiple Dependent Claim (s)		

* If difference is less than zero
then enter '0' in second column

Rate	Fee
	\$ 345
x 9	\$
x 39	\$
+ 130	\$
Total	\$

OR

Rate	Fee
	\$ 690
x 18	\$ 0
x 78	\$ 78
+ 260	\$ 0
Total	\$ 768



A check in the amount of \$ 768.00 is enclosed for the filing fee.



The Commissioner is hereby authorized to charge any additional fees that may be required to
Deposit Account No. 50-1417.

Respectfully Submitted,

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Title of the Invention

ADAPTIVE COMMUNICATION METHOD

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TITLE OF THE INVENTION

ADAPTIVE COMMUNICATION METHOD

5 BACKGROUND OF THE INVENTION

1. Field of the Invention

002280, 8524460
004758, 002300

The present invention relates to a method of notifying information according to environment information and the contents of notification which is implemented in a distributed system consisting of a plurality of pieces of equipment including one or more arithmetic units. Specifically, a system manager sets a condition for information presentation in equipment in advance or a user sets the condition for information notification in equipment. When the condition is met, information is presented to a notified person.

2. Description of the Related Art

According to the present invention, a condition for information presentation or a condition for information notification is set in equipment in order to assign processing to equipment. Conventional methods of assigning processing implemented in a distributed system include a method described in, for example, Japanese Unexamined Patent Publication No. 8-137697. According to the method, a distributed system includes a plurality of agents for carrying out tasks.

The agent has the knowledge relevant to its own ability and others' abilities to carry out a task, and

determines assigned processing through negotiations. Furthermore, the agent detects a change in the characteristics of a system from the results of processing and modifies its own knowledge. Owing to this technique, processing can be assigned based on a change in a system without the necessity of maintenance.

SUMMARY OF THE INVENTION

In the foregoing conventional distributed system, the agent infers a situation only after executing a task. Unless the agent grasps a situation accurately, processing may be assigned undesirably. Furthermore, after processing is assigned, if an environment of the agent changes, processing being executed does not make sense. A system manager or a user must determine settings necessary for assignment of processing again. This poses a problem.

Furthermore, in some distributed systems, the number of components is very large, and addition or separation of a component takes place all the time. In this case, it is very difficult to limit an information presenting means, which presents information to a user after processing is assigned, to one specific means. The information presenting means must be changed from one to another according to a component used to present information. According to the technique that has been proposed in the past, a system manager or a user must determine settings according to a change of components

used to notify information. This poses a problem.

The present invention attempts to break through the foregoing situation. An object of the present invention is to avoid execution of unnecessary

5 processing so as to reduce a processing load incurred by an arithmetic unit and the necessity of re-setting a condition. Specifically, according to the present invention, a change in environment information is detected even during execution of processing, and a way
10 of information presentation is changed based on the change or information presentation is suspended. Moreover, an information presenting means is provided in line with a component used to present information.

For accomplishing the above object, according
15 to the present invention, even when processing is being executed under a condition for information presentation set by a system manager or a user-specified condition for information notification, environment information of an environment surrounding a system for which the
20 condition for information notification is set can be acquired. Information is then notified based on the acquired information. What is referred to as environment information is information concerning an environment, in which the system and/or equipment is
25 installed, including a situation in which a user confronts. The environment information affects a way of information presentation according to which equipment is used to present information to a notified

person.

Absolute or relative time is acquired as the environment information of an environment surrounding the system for which the condition for information notification is set. What is referred to as time information is information representing a time or a time instant and including a scheduled processing end time instant or a processing time.

Change information that indicates addition or separation of equipment to be accommodated in a network within a distributed system is acquired. Otherwise, information concerning a notified person is acquired. The information concerning a notified person includes information with which a notified person is identified, location information indicating the location of a notified person, or an attention level or an object of attention to which a notified person is attracted attention. Otherwise, ambient information of equipment is acquired. The ambient information includes information of equipment which can be detected using a sensor by the equipment forming the distributed system. Otherwise, the contents or amount of presented information is acquired as the environment information. Otherwise, an information notification destination is acquired as the environment information.

Since the foregoing information is acquired, if it is judged that the necessity of notifying information is nullified, information notification is

suspended. Otherwise, since the foregoing information is acquired, if it is revealed that a notified person has moved, an information notification destination or a range of information notification is changed.

- 5 Otherwise, an information representing means is selected based on the information notification destination, so that a user can be notified of information properly. Otherwise, when the environment information based on which the condition for
- 10 information presentation or the condition for information notification is determined is changed, the condition is changed. Otherwise, since the foregoing information is acquired, if information required by a notified person is changed, the contents of information
- 15 to be presented to the notified person are changed.

- Since the foregoing information is acquired, if the importance of information required by a notified person is presumably changed, a priority given to processing to be performed for notifying the notified
- 20 person of information or the frequency of executing information presentation for presenting information to the notified person is changed. Furthermore, selection of an information presenting means or split of presented information is performed based on the
- 25 contents or amount of notified information.

The above processing is carried out without interference of a system manager or user during execution of another processing. Presentation of

unnecessary information can be avoided, and information can be presented more efficiently. Furthermore, information can be presented to a notified person properly according to a situation.

5

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 schematically shows an example in which an adaptive communication method in accordance with the present invention is implemented in home automation;

10 Fig. 2 is a flowchart describing information notification to be performed under a user-specified condition within home automation;

15 Fig. 3 is a flowchart describing changing of information notification according to environment information within home automation;

Fig. 4 schematically shows an example in which the adaptive communication method in accordance with the present invention is implemented in an inventory management system;

20 Fig. 5 shows the structure of a table held in an IC tag borne by commodities placed in a showcase;

Fig. 6 shows the structure of a table held in an IC tag borne by commodities preserved in a warehouse;

25 Fig. 7 is a flowchart describing inventory monitoring performed by the inventory management system;

Fig. 8 is a flowchart describing notification

at step ST82 whether information should be notified. For example, it is judged from location information of a notified person whether the equipment is suitable for notification. Assuming that the notified person is attracted attention to his/her own equipment, it is judged that the equipment 61 can be used to notify information. When it says that the notified person is attached attention to his/her own machine, it means that if the equipment includes a television, the television is switched on and the notified person is watching television for a certain period of time or longer. If it is judged at step ST82 that information can be notified, control is passed to step ST83. Otherwise, control is passed to step ST81, and the standby state is retained until a notification request is received. At step ST83, the data acquisition program 65 acquires information relevant to the processing.

If information provided by a sensor included in the own equipment is needed to judge whether notification should be performed, the data acquisition program acquires the information. If another information is needed, the data acquisition program uses the communication management unit 62 to issue an information transmission request to another piece of equipment, and acquires information. Herein, all pieces of equipment may transmit information at regular intervals, and receiving equipment may acquire

the user 4 according to the user's biomedical features through image processing. Alternatively, the sensor 5 may receive information of the user 4 originated from an apparatus worn by the user 4, and detect the user 4 staying in a room 2.

Fig. 2 describes a flow of processing included in the adaptive communication method in accordance with the present invention. Assuming that the user 4 wants to acquire certain information. A condition for information presentation is set at step ST1. For example, when the user 4 wants to pour hot water into a bathtub, the user 4 can determine a setting so that when the level of hot water has come to be 15 cm below the top of the bathtub, the user will be notified of the fact. Moreover, the user 4 can also set a target time instant by which hot water has been poured into the bathtub. Setting the condition may be achieved using a personal computer or using a bathtub management system. Set information is held in, for example, the bathtub management system. Alternatively, the set information may be held in the equipment 3 used to notify the user 4 of information.

A system manager may predefine the setting of the condition for information presentation. For example, an alarm message may be transmitted when the temperature of hot water in a bathtub exceeds 50°C. It is judged at step ST2 whether the results of processing being executed meet the condition set at step ST1. If

it is judged at step ST2 that the request of processing meet the condition, control is passed to step ST3. At step ST3, a user is notified of information. For notifying the user 4 of information, for example, an audio player may be used to notify the user 4 with voice. Otherwise, the user 4 may be notified with flickering of light emanating from a lighting or by displaying characters using a personal computer or the like that has a display device. In this case, an information presenting means may be changed according to an amount or the contents of presented information. Otherwise, presented information may be split. For example, an amount of hot water may reach a set value but the temperature of hot water may exceed 50°C. In this case, the presented information may be split, so that the amount of hot water can be presented as character information and the temperature can be presented as an alarm given with a voice. Alternatively, the alarm may be given with a voice message in order to attract a notified person's attention. The character information may be presented using a display device. If it is judged at step ST2 that the results of processing do not meet the condition, control is passed to step ST4. Environment information is then acquired.

When it says that environment information is acquired, it means that a current place (room) where the user 4 stays, an action of the user 4, the active

passed to step ST13. It is then judged whether the user 4 has moved. Herein, if a room wherein the user 4 stays is different from the results of previous measurement performed using the sensor 5 installed in each room 2, the user 4 is judged to have moved from one room to another. In any other case, it is judged that the user 4 has not moved from one room to another. Alternatively, a sensor may be mounted on a door or any other partition between rooms in order to detect passage. When the sensor detects passage of the user 4, it may be judged that the user 4 has moved. Otherwise, it may be judged that the user 4 has not moved. If it is judged that the user has moved, control is passed to step ST14. The equipment 3 to be used to notify the user 4 of information is determined based on a room where the user 4 currently stays, so that the user 4 will be notified of information reliably. Furthermore, the user 4 is notified of information according to the characteristic of the equipment 3.

For example, if the equipment 3 includes an audio player, notification is achieved with voice. If the equipment 3 includes a personal computer having a display device, notification is achieved with characters. If the equipment 3 includes a lighting, notification is achieved with flickering of light. Information concerning an attention level at which the user 4 is attracted attention or an object of attention to which the user 4 is attracted attention may be

identification number 41 indicates the type of commodity 18. The price 42 indicates an actual selling price of the commodity 18. The effective period 43 indicates a period during which the price 42 is effective. The standard price 44 indicates a desired retail price. The IC tag 16 and IC tag 19 transmit current inventory information and notify a driver of a delivery truck 21 of information via equipment 20.

Fig. 7 describes a flow of inventory monitoring included in the adaptive communication method in accordance with the present invention that is implemented in the inventory management system. A manager of the overall system may predefine a condition for monitoring, or a proprietor of each shop may define it in a due course. First, the quantity of commodities 15 in the showcase 14 is acquired at step ST21. The quantity may be managed using a cash register. Alternatively, a presence message to be transmitted periodically from the IC tag 16 may be utilized. It is then judged at step ST22 whether the quantity of displayed commodities is sufficient. For example, when the quantity of displayed commodities is ten pieces or less, it is judged that the quantity of displayed commodities is insufficient. Control is then passed to step ST23. If the quantity of displayed commodities is judged to be sufficient, a standby state is retained for a certain period of time. Thereafter, control is returned to step ST21. The inventory of commodities 18

kept in the warehouse 13 is acquired at step ST23. The inventory may be managed using the cash register. Alternatively, the presence message to be transmitted periodically from the IC tag 19 may be utilized.

- 5 Control is then passed to step ST24. It is then judged whether the inventory is sufficient.

For example, when the inventory is too small to fill one casing, the inventory is judged to be insufficient. Control is then passed to step ST26. A
10 delivery request is issued to the delivery truck 21. If the inventory is judged to be sufficient, control is passed to step ST25. A salesperson in the retail shop 1 is instructed to replenish the showcase 14 with the commodities 15.

- 15 Fig. 8 describes a flow of issuing a replenishment instruction with the commodities 15 to a salesperson at the retail shop 1. First, a time instant is acquired at step ST31. It is then judged whether it is a time during which the sales volume of
20 commodities 15 to be supplied for replenishment is large. For example, assuming that the commodities to be supplied for replenishment are packed lunches, it is regarded that the sales volume is large in the daytime and at night. If it is judged at step ST32 that the
25 sales volume is large, control is passed to step ST33. A range of notification, a priority, and a frequency are changed at step ST33. For example, the number of salespersons to be instructed to replenish the showcase

with commodities is increased. If the priority is ranked in seven levels, a priority given to notification may be raised by two levels. Moreover, if it is set that notification is performed at intervals of 30 minutes, the setting may be changed so that notification will be performed at intervals of 15 minutes.

Thereafter, control is passed to step ST34. If it is judged at step 32 that it is not the time during which the sales volume is large, control is passed to step ST34. The locations of salespersons are acquired at step ST34. For example, the salespersons may each be asked to wear a transmitter that originates identification information, and the locations of the salespersons may be acquired based on the identification information. The situations of the salespersons are acquired at step ST35. If a salesperson is manipulating a cash register, the salesperson is judged to be attending a shopper. At step ST36, it is judged from the information acquired at step ST34 and step ST35 whether a notification destination should be changed. For example, when the notification destination is a salesperson lying nearest the showcase 4 or warehouse 3 to be replenished with commodities, if the salesperson is attending a shopper, it is judged that the notification destination should be changed.

If it is judged at step ST36 that the

notification destination should be changed, control is passed to step ST37. The notification destination is then changed at step ST37. For example, the notification destination is changed so that a

5 salesperson watching the monitor of a monitoring camera will be notified. If all the commodities in the showcase are sold out, the showcase must be replenished immediately. In this case, all pieces of equipment located around a salesperson may be used to notify the salesperson. At step ST38, notification is performed according to a medium used to notify a salesperson of a replenishment instruction. For example, voice is used to notify a salesperson lying in a warehouse. Characters may be displayed on a monitoring monitor in

10 order to notify a salesperson watching the monitor.

Fig. 9 describes a flow of issuing a commodity delivery request to a driver of the delivery truck 21 in this example. First, a sales history is acquired at step ST41. The sales history is extracted from the sales results 35 held in the IC tag 16. Control is

20 then passed to step ST42. It is then judged whether good sales are expected. For example, if the sales results have been nil for one past week, it is judged that good sales are unexpected. Control is then passed

25 to step ST43, and issuance is suspended. If the sales results have been three pieces for one past day, control is passed to step ST43. A criterion based on which a judgment is made at step ST22 is changed, and

at intervals of fifteen minutes. After changing the setting is completed, control is passed to step ST47. If it is judged at step ST45 that it is not the time during which the sales volume is large, the above

5 settings are not changed but control is passed to step ST47. The current location of the delivery truck 21 is acquired at step ST47. For example, a computer in a central management center may be inquired in order to acquire the current location of the delivery truck.

10 The current location is thus acquired at step ST47, and the situation of the driver of the delivery truck 21 located within the range of notification is acquired at step ST48. For example, when the delivery truck is parked in a parking lot, the driver is regarded to be

15 away from the delivery truck 21. When the delivery truck 21 is being moved, the driver is regarded to be driving the truck. Otherwise, when the delivery truck 21 is parked, the driver is regarded to be taking a rest. At step ST49, it is judged from the results of

20 acquisition performed at step ST48 whether a notification destination should be changed. For example, when it is set that the driver of the nearest delivery truck 21 should be notified, if the driver of the nearest truck 21 is away from the delivery truck 21,

25 it is judged that the notification destination should be changed. If it is judged at step ST49 that the notification destination should be changed, control is passed to step ST50. At step ST50, the notification

destination is changed from the delivery truck 21 nearest to the retail shop 1, of which driver is away from the delivery truck 21, into the delivery truck 21 being driven towards the retail shop 1. Otherwise, when packed lunches are sold out at lunchtime, packed lunches must be urgently supplied for replenishment. In this case, all the trucks 21 located nearby may be notified. When changing the notification destination is completed at step ST50, control is passed to step ST51.

If it is judged at step ST49 that it is unnecessary to change the notification destination, control is passed to step ST51. A selling price is acquired at step ST51. The selling price is extracted from the price 32 held in the IC tag 16. If it is judged from the price 32 at step ST52 that a special sales is under way at the retail shop 1, the price 32 is regarded to be inappropriate as the selling price. Control is then passed to step ST53. At step ST53, the contents of notification are changed. For example, a message saying that the commodities 18 requested to be delivered are involved in the special sales is appended to the delivery request. Control is then passed to step ST54. If it is judged at step ST52 that the price is appropriate, control is passed to step ST54. Notification to be performed at step ST54 depends on a medium. For example, when a delivery truck is being driven, a display device included in a car navigation

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system is used to display characters meaning the delivery request. When a driver is taking a rest, a car audio player is used to sound an alarm. After the driver's attention is thus attracted, the display device of the car navigation system is used to display characters meaning the delivery request.

When a driver is away from the delivery truck 21, the driver's portable telephone, wristwatch, or the like is used to display characters meaning the delivery request.

(Third Example)

Fig. 10 schematically shows an example in which the adaptive communication method in accordance with the present invention is implemented in a design information management system. Terminals or the like are connected over a transmission medium 51. The transmission medium 51 is, for example, the Ethernet. An acknowledged design document management database 52 contains acknowledged design documents. A server for managing the management database 52 is an acknowledged design document management server 53. The acknowledged design document management server 53 is connected onto a network via one or more routers 54. The network accommodates an unfinished design document management database 55 located at each design division and an unfinished design document management server 56 for managing the unfinished design document management database 55.

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The unfinished design document management database 55 is used to manage unacknowledged design documents that are accessible in common within a design division. A plurality of user terminals 57 is
5 connected over the transmission medium 51. A design document is created at the user terminal 57. An unfinished design document or the location of the unfinished design document is contained in the unfinished design document management database 55.

10 Otherwise, the user terminal 57 may be used exclusively to notify a user of information, and may be realized with a portable terminal or a wristwatch-like terminal.

Fig. 11 describes a flow of design information provision included in the adaptive communication method
15 in accordance with the present invention implemented in the design information management system. At step ST61, a user who wants to be notified of design information sets a condition. For example, the condition is set so that when a design drawing is changed, the fact will be notified. Alternatively, a system manager may set a
20 condition for notification of design information. For example, the condition is set so that when a time lag is detected relative to predefined milestone information, notification will be performed. Based on
25 the condition defined at step ST61, design-related information is acquired at step ST62. For example, when a document contained in the acknowledged design document management database 52 is changed, since the

condition for notification is met, a version of the document is produced.

Furthermore, time information such as a current date, equipment information of equipment constituting a network, and terminal information of a terminal at which a user has logged in are acquired. When the terminal at which the user has logged in is a portable terminal, ambient environment information indicating that the user stays indoors or outdoors is acquired if possible. It is judged at step ST63 whether the user's situation has changed. If the situation has changed, control is passed to step ST64. Settings are changed. Fig. 12 describes a detailed flow of changing settings. Control is then passed to step ST65. If it is judged at step ST64 that the situation has not been changed, control is passed to step ST65. It is judged at step ST65 whether information acquired at step ST62 meets the condition set at step ST61 or the condition changed at step ST64. For example, it is judged whether a version of a design document has been changed. If it is judged at step ST65 that the condition is not met, a standby state is retained for a certain period of time. Thereafter, control is returned to step ST62.

If it is judged at step ST65 that the condition is met, control is passed to step ST66. A notified person is then notified as described in Fig. 12. Changing settings at step ST64 will be described. First, for example, job assignment is changed at step

located nearby. If it is judged that no milestone is located nearby, the processing is terminated.

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In contrast, if it is judged that a milestone is located nearby, control is passed to step ST76. If
5 a milestone is located nearby, it is judged that all items of design information have been completed. Design information relevant to notified information is therefore notified together with the notified information at step ST76. A time lag relative to a
10 milestone may be indicated using a drawing, while a change in a design document may be indicated using characters. When a milestone is located nearby, a priority given to processing and the frequency of notifying information are raised. For example, when
15 the priority is ranked in seven levels, a priority of level 4 is raised to a priority of level 2. When the notification frequency is set so that notification will be performed with every sixth change, the setting may be changed so that notification will be performed with
20 every change. This enables careful management. When a milestone is located nearby, it is judged that processing must be performed carefully. Normally, a change in a document contained in the acknowledged design document management database 52 is detected. In
25 contrast, when a milestone is located nearby, a change in a document contained in the unfinished design document management database 55 or a change in data stored in the user terminal 57 capable of creating a

WHAT IS CLAIMED IS:

1. An adaptive communication method for
notifying an information notified person of information,
5 which relates to the ability of any of a plurality of
pieces of equipment, from a distributed system
consisting of the plurality of pieces of equipment that
is interconnected over a transmission medium and that
includes one or more arithmetic units, said adaptive
10 communication method comprising the steps of:

acquiring environment information, which
indicates an environment in which the plurality of
pieces of equipment is installed, at least a
predetermined time earlier than the time instant at
15 which the information is notified;

determining a way of notifying the information
notified person of information according to the
acquired environment information and the contents of
information to be notified; and

20 notifying the information notified person of
the information according to the determined way of
information notification.

2. An adaptive communication method according
to Claim 1, wherein the environment information is at
25 least one of time information concerning the ability of
equipment, equipment information concerning equipment
connected over the transmission medium, location
information concerning the information notified person,

one or more arithmetic units and that notifies predetermined information, comprising:

a means for acquiring environment information, which indicates an environment in which the plurality of pieces of equipment is installed, at least a predetermined time earlier than the time instant at which the information is notified; and

a means for determining a way of notifying an information notified person of information according to the acquired environment information and the contents of information to be notified.

6. Equipment forming a distributed system according to Claim 5, wherein the environment information is at least one of time information concerning the ability of equipment, equipment information concerning equipment connected over the transmission medium, location information concerning the information notified person, a level of attention at which the information notified person is attracted attention, an object of attention to which the information notified person is attracted attention, identification information with which the information notified person is identified, the contents or amount of information, information concerning an apparatus used to notify information, and ambient information concerning the plurality of pieces of equipment.

7. Equipment forming a distributed system according to Claim 5, further comprising a means for

suspending notification of the information notified person of information according to the environment information.

8. Equipment forming a distributed system
5 according to Claim 5, wherein the means for determining the way of information notification carries out at least one of changing a condition for notification of the information notified person of information according to the environment information, changing the
10 contents of information, changing the apparatus used to notify information, changing a range of information notification, changing a priority given to information notification, changing the frequency of information notification, and splitting the contents of notified
15 information.

9. A distributed system consisting of a plurality of pieces of equipment, which is interconnected over a transmission medium and includes one or more arithmetic units, and notifying
20 predetermined information, wherein:

at least one of the plurality of pieces of equipment comprises:

a means for acquiring environment information, which indicates an environment in which the plurality
25 of pieces of equipment is installed, at least a predetermined time earlier than the time instant at which the information is notified; and

a means for determining a way of notifying an

information notified person of information according to the acquired environment information and the contents of information to be notified.

10. A distributed system according to Claim 9,
5 wherein the environment information is at least one of time information concerning the ability of equipment, equipment information concerning equipment connected over the transmission medium, location information concerning the information notified person, a level of
10 attention at which the information notified person is attracted attention, an object of attention to which the information notified person is attracted attention, identification information with which the information notified person is identified, the contents or amount
15 of information, information concerning an apparatus used to notify information, and ambient information concerning the plurality of pieces of equipment.

11. Equipment forming a distributed system that consists of a plurality of pieces of equipment
20 being interconnected over a transmission medium and including one or more arithmetic units and that notifies predetermined information, comprising:

a memory in which programs are stored; and
a processor, connected to the memory, for,
25 based on the programs, acquiring environment information, which indicates an environment in which the plurality of pieces of equipment is installed, at least a predetermined time earlier than the time

instant at which the information is notified, and
determining a way of notifying an information notified
person of information according to the acquired
environment information and the contents of information
to be notified.

12. Equipment forming a distributed system
according to Claim 5, wherein the environment
information is at least one of time information
concerning the ability of equipment, equipment
information concerning equipment connected over the
transmission medium, location information concerning
the information notified person, a level of attention
at which the information notified person is attracted
attention, an object of attention to which the
information notified person is attracted attention,
identification information with which the information
notified person is identified, the contents or amount
of information, information concerning an apparatus
used to notify information, and ambient information
concerning the plurality of pieces of equipment.

13. Equipment forming a distributed system
according to Claim 12, wherein said processor suspends
notification of the information notified person of
information according to the environment information.

14. Equipment forming a distributed system
according to Claim 11, wherein said processor carries
out at least one of changing a condition for
notification of the information notified person of

- information according to the environment information,
changing the contents of information, changing the
apparatus used to notify information, changing a range
of information notification, changing a priority given
5 to information notification, changing the frequency of
information notification, and splitting the contents of
notified information.

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According to the present invention, even when an agent in which a user-specified condition for information notification is held is executing processing, environment information indicating an environment of the agent can be acquired. The environment information includes equipment accommodated in a network, a user's situation, and environment information indicating an environment outside the equipment. Information is notified based on the acquired information. Specifically, based on the environment information, information notification may be suspended, an information notification destination or a range of information notification may be changed, a priority given to notified information may be changed, or the contents of a setting or notified information may be changed. Furthermore, a way of information notification is changed in line with the characteristics of an apparatus used to notify a user

of information.

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FIG. 1

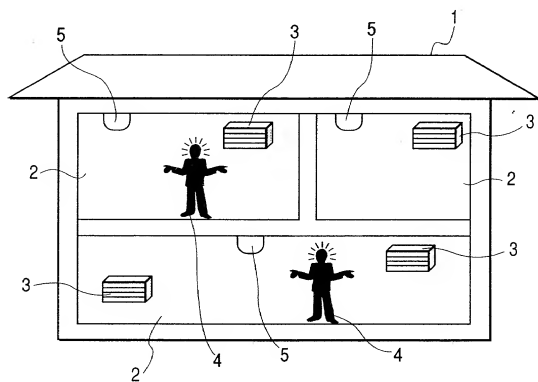


FIG. 2

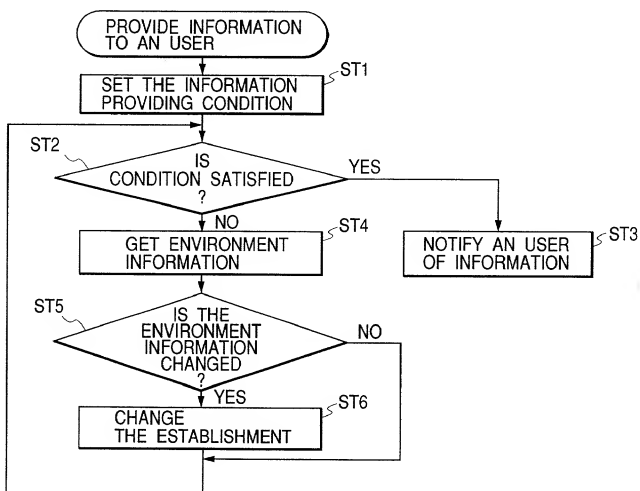


FIG. 3

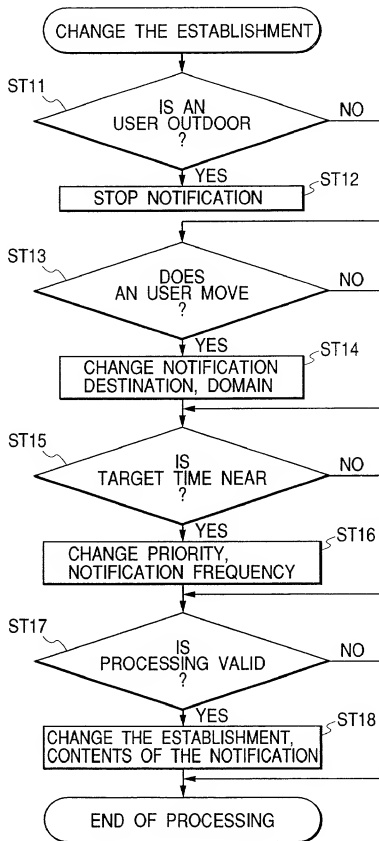


FIG. 4

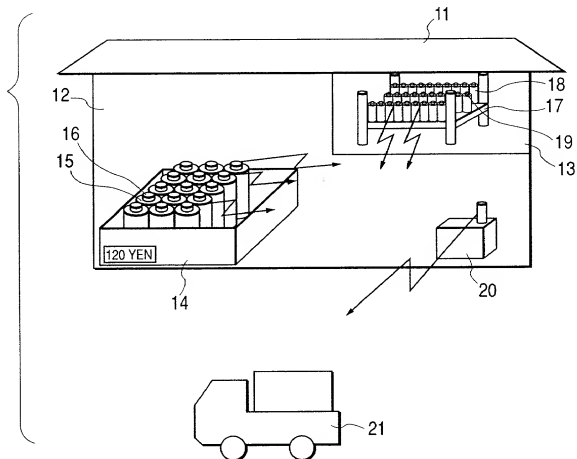


FIG. 5

31	GOODS ID	0123456789
32	PRICE	100
33	EFFECTIVE PERIOD	--/1999-12-30
34	STANDARD PRICE	120
35	CONSIGNMENT ACHIEVEMENTS	100

FIG. 6

41	GOODS ID	0123456789
42	PRICE	100
43	EFFECTIVE PERIOD	- / 1999-12-30
44	STANDARD PRICE	120

FIG. 7

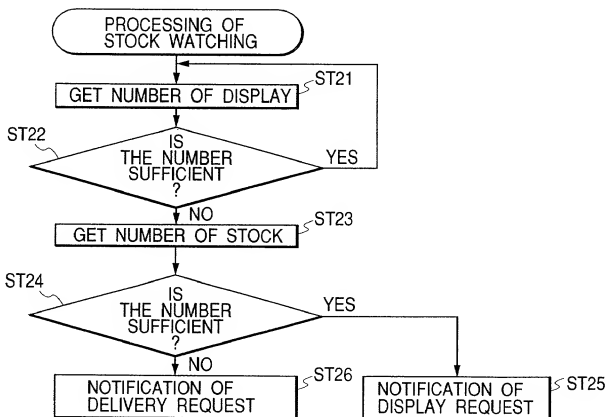
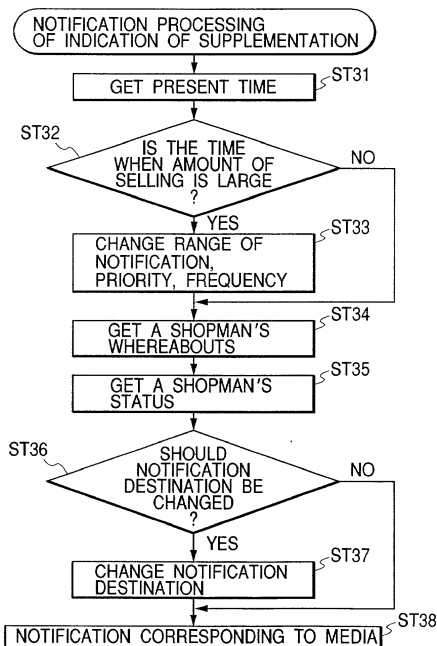


FIG. 8



```

graph TD
    Start([NOTIFICATION PROCESSING  
OF DELIVERY REQUEST]) --> ST41[GET HISTORY OF SALES]
    ST41 --> ST42{IS  
SALES HOPEFUL ?}
    ST42 -- NO --> ST43[CHANGE THE  
ESTABLISHMENT/  
STOP NOTIFICATION]
    ST42 -- YES --> ST44[GET PRESENT TIME]
    ST44 --> ST45{IS THE TIME  
WHEN AMOUNT OF  
SELLING IS LARGE ?}
    ST45 -- NO --> ST47[GET DELIVERY TRUCK'S  
WHEREABOUTS]
    ST45 -- YES --> ST46[CHANGE RANGE OF  
NOTIFICATION,  
PRIORITY, FREQUENCY]
    ST46 --> ST47
    ST47 --> ST48[GET CONDITION OF  
A DRIVER]
    ST48 --> ST49{SHOULD  
NOTIFICATION  
DESTINATION BE  
CHANGED ?}
    ST49 -- NO --> ST51[GET THE SELLING PRICE]
    ST49 -- YES --> ST50[CHANGE NOTIFICATION  
DESTINATION]
    ST50 --> ST51
    ST51 --> ST52{IS THE  
SELLING PRICE VALID ?}
    ST52 -- YES --> ST54[NOTIFICATION CORRESPONDING TO MEDIA]
    ST52 -- NO --> ST53[CHANGE NOTIFICATION  
CONTENTS]
    ST53 --> ST54
  
```

FIG. 10

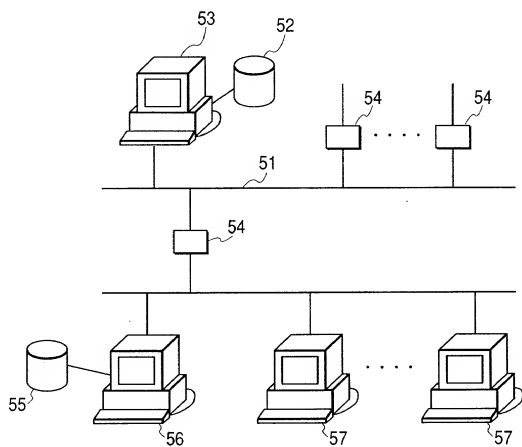


FIG. 11

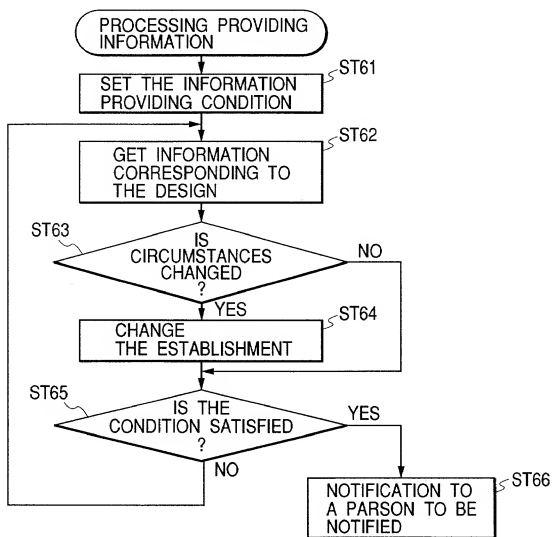


FIG. 12

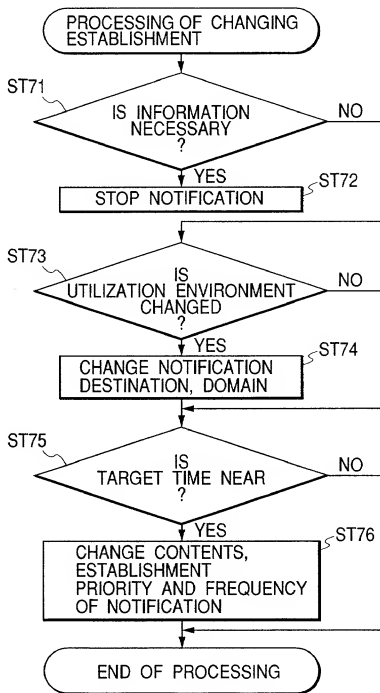
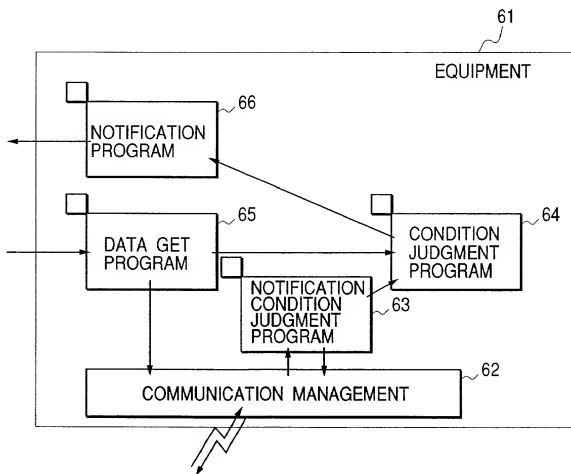


FIG. 13



[illegible]

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